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MBA PROFESSIONAL REPORT

**Analysis of Design-Build Processes, Best Practices, and Applications to
the Department of Defense**

**By: Kim S. Cantrell
June 2006**

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**ANALYSIS OF DESIGN-BUILD PROCESSES, BEST PRACTICES,
AND APPLICATIONS TO THE DEPARTMENT OF DEFENSE**

Kim S. Cantrell, Civilian, Department of the Navy

Submitted in partial fulfillment of the requirements for the degree of

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**NAVAL POSTGRADUATE SCHOOL
June 2006**

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ANALYSIS OF DESIGN-BUILD PROCESSES, BEST PRACTICES, AND APPLICATIONS TO THE DEPARTMENT OF DEFENSE

ABSTRACT

The Federal Government's preference for the acquisition of commercial items was placed into law under Public Law 103-355, Federal Acquisition Streamlining Act of 1994. Acquisition policies were established that more closely resembled those of the commercial marketplace and the law encouraged the acquisition of commercial supplies and services. This law did not extend to the acquisition of design-build construction. Acquisition policy regarding Government design-build should be analyzed to determine which best commercial processes/practices may be applied to the acquisition of Government design-build.

Design-Build (DB) is defined as a project delivery system in which the owner contracts with, and holds responsible, one single entity for both design and construction of a project. This method differs from the traditional design-bid-build (DBB) approach in which the owner contracts with an architect to design the project (prepare drawings and specifications) under a design contract and then competitively bids the project among construction contractors to build the facility (American Institute of Architects, 2006).

With NAVFAC's mandate, that by the end of Fiscal Year (FY) 07, 75% of capital improvement projects above \$750,000 will be accomplished by design-build acquisition, it is imperative that we look into utilizing non-DoD design-build processes/practices to allow flexibility, creativity and innovativeness in design approach; take advantage of time-savings; and complete projects within cost. In order to achieve this goal NAVFAC strategy is to ensure the most efficient business processes are in place (Capital Improvements Business Line, Design-Build Policy and Guidelines, 2005).

The purpose of this research is to examine current non-DoD design build processes, determine best practices, analyze the application of these best practices to the award and administration of DoD, specifically NAVFAC, design-build contracts and provide recommendations.

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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ACO	Administrative Contracting Officer
A/E	Architect/Engineer
ATFP	Anti Terrorism and Force Protection
BAA	Buy American Act
CM	Construction Manager
CMMM	Contract Management Maturity Model
CSUMB	California State University-Monterey Bay
DB	Design-Build
DBB	Design-Bid-Build
DBIA	Design-Build Institute of America
DDB	Design/Design Build
DoD	Department of Defense
DOR	Designer of Record
FAR	Federal Acquisition Regulation
GMP	Guaranteed Maximum Price
HVAC	Heating, Ventilation Air Conditioning
IDIQ	Indefinite Delivery Indefinite Quantity
LANTDIV	Atlantic Division
LEED	Leadership in Energy and Environmental Design
MACC	Multiple Award Construction Contract
MCNR	Military Construction and Renovation
MILCON	Military Construction
MPC	Monterey Peninsula College
NAVFAC	Naval Facilities Engineering Command
NDBM	NAVFAC Design-Build Master
OMSI	Operation & Maintenance Support Information
PENREN	Pentagon Renovation Program

RFP	Request for Proposal
RFQ	Request for Quote
RFTP	Request for Technical Proposal
SBA	Small Business Administration

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EXECUTIVE SUMMARY

The Federal Government's preference for the acquisition of commercial items was placed into law under Public Law 103-355, Federal Acquisition Streamlining Act of 1994. Acquisition policies were established that more closely resembled those of the commercial marketplace and the law encouraged the acquisition of commercial supplies and services. This law did not extend to the acquisition of construction nor design-build construction. Acquisition policy regarding Government design-build should be analyzed to determine which best commercial processes/practices may be applied to the acquisition of Government design-build.

Design-Build (DB) is defined as a project delivery system in which the owner contracts with, and holds responsible, one single entity for both design and construction of a project. This method differs from the traditional design-bid-build (DBB) approach in which the owner contracts with an architect to design the project (prepare drawings and specifications) under a design contract and then competitively bids the project among construction contractors to build the facility. The advantage of using design-build procedures is that the design and construction of the project is the responsibility of a single entity with a single point of responsibility for quality, cost, and schedule; risk is shifted to the design-builder in the areas of design defect and design warranties; guaranteed construction costs are known sooner; total design and construction time may be significantly reduced; and the design-build team is allowed to be creative and innovative in their approach.

With NAVFAC's mandate, that by the end of Fiscal Year (FY) 07, 75% of capital improvement projects above \$750,000 will be accomplished by design-build acquisition, it is imperative that we look into using non-DoD design-build processes/practices to allow flexibility and innovativeness in design, complete projects on time, within cost, with fewer change orders and re-design. In order to achieve this goal NAVFAC strategy is to ensure the most efficient business processes are in place (Capital Improvements Business Line, Design-Build Policy and Guidelines, 2005).

The purpose of the research is to examine current non-DoD design build processes, determine best practices, analyze the application of these best practices to the award and administration of DoD, specifically NAVFAC, design-build contracts and provide recommendations.

The literature review identified several commercial best practices: (1) design requirements, (2) source selection (evaluation process and directed selection), (3) long-standing relationships/strategic partnerships, (4) contract incentives, (5) foreign-made materials, and (6) construction management services. Of these best practices two offer the most benefit to NAVFAC in their acquisition of design-build construction. These best practices are design requirements and contract incentives. The literature review also revealed there are problems with the Buy American Act as it currently applies to the acquisition of design-build construction. Lessons learned from the Pentagon Renovation Program are discussed as they apply to design requirements and contract incentives. The Pentagon Renovation Program model is on the cutting edge of acquisition of design-build. The acquisition strategy published by the Pentagon Renovation Program states “The Pentagon Renovation Program continues to develop and institutionalize revolutionary construction business practices that are performance-based and results-oriented. Major projects undertaken through this program ‘utilize state of the art acquisition reform techniques and incentive structures to maximize limited budgets and promote performance and behavior necessary to make the projects successful...’”. (Pentagon Renovation and Construction, <http://renovation.pentagon.mil/acquisition>, 2005)

Design Requirements

NAVFAC utilizes performance-based specifications to acquire design-build construction, but the specifications contained in MILCON and MAAC contracts are still too prescriptive. Too much information is provided which, at times, causes conflicts between specifications, standards, and conceptual drawings. It was recommended that facility requirements be stated in performance terms and relate to recognized industry standards; that performance specifications be tailored to include commercial codes and

standards that establish minimum construction requirements; that these codes be augmented with specific Executive Order requirements such as ATFP, sustainable design, and LEED; and that regional market conditions be utilized to determine minimum quality requirements.

Design review meetings are held throughout the design process but it was recommended that submission of design documents and design reviews at preset milestones (35%, 65% and 100%) be replaced with an ongoing, constant review process that increases owner involvement and allows the design-build entity the flexibility to achieve the desired outcome. Flexibility in design decisions will enable the design-build team to provide solutions that take advantage of their unique strengths and experience. At a NAVFAC Workshop, AIA 2005 Convention, held 17 May 2005, a working paper was written outlining a new design-build procurement process titled “Market Style Design-Build”. One of the outcomes proposed by this working group was to encourage construction speed and minimize Government delay by altering government oversight of design and construction. One recommendation made was that all government quality assurance design reviews be performed in parallel with construction by the contractor. This means that the contractor would not have to wait for formal government acceptance of design submittals and could begin construction when the contractor obtained Designer of Record (DOR) professional signatures, obtained contractor design quality control/quality control approvals, and that the design submittal was forwarded to the Government.

Source Selection (Evaluation Processes)

The literature review revealed non-DoD owners utilize a variety of evaluation processes in evaluating technical and price proposals. Non-DoD evaluation processes use either a point system, weights, or technical leveling to rate proposals. One evaluation process titled “Equivalent Design/Low Bid” relies on technical leveling to create equivalent designs. Technical proposals are rated and critiqued and each offeror is required to make specified design changes and corresponding changes in price.

In order to maximize Government’s ability to obtain the best value, meaningful discussions should be held that help an offeror to materially enhance their technical

proposal's chance for award without losing the creative and innovative approach that sets one offeror apart from another. Technical leveling, technical transfusion, or a system of points or weights does not offer the best approach for obtaining best value.

Source Selection (Directed Selection)

Directed selection is not viable for DOD contracting as it is only allowed by NAVFAC for acquisitions below \$3 million. "Partnering the Proposal" is a method developed for use on sole source contracts with firms who are certified with the SBA under their 8(a) program. This process allows for flexible scope discussions between the technical staff, customers, and the contractor during the proposal phase and prior to contract award. Recommend that this method continue to be utilized as appropriate for those projects that require continued scope development during the RFP process.

Long-term Relationships/Strategic Partnering

Long-term relationships offer advantages and disadvantages. Award-term and award-option contracts are one way to achieve a long-term relationship with a design-build entity and most closely mirrors the relationships established in the commercial sector. With the recent Department of the Navy policy changes regarding contract length, award-term and award-option contracts for Indefinite Delivery-Indefinite Quantity contracts are no longer viable beyond five years (Section 843 of the National Defense Authorization Act for Fiscal Year 2004, Public Law 108-136).

Contract Incentives

Contract incentives are an appropriate method of motivating a contractor to perform beyond contract requirements. Determining contract type and whether incentives are appropriate is the responsibility of the acquisition team during acquisition planning and market research. The contracting team should review the latest completed design-build projects and determine if the projects were completed on schedule, within cost, and with no quality/performance/functional concerns. Using the experiences of the Pentagon Renovation Program team and their approach to market research, each acquisition team should determine what the market in their area is telling them about

design-build: who are the potential design-build entities we expect to compete, what are the driving forces in the design-build market in the area; etc. Incentives should be tailored to the specific procurement action. It was recommended NAVFAC develop and implement policy for the use of contract incentives in design-build construction contracts.

Foreign-Made Materials

Government design-build/construction requires the contractor use American-made construction materials while commercial practice does not make a distinction as to where materials and supplies are manufactured. In design-build construction, there is simply no basis to accurately assess potential Buy American Act issues prior to award. Until the design is completed and accepted the impact of Buy American Act affected materials simply cannot be assessed or quantified in other than the most general terms. The definition of “domestic availability” should be modified to read as “commonly available” or “regularly manufactured” by domestic sources. Buy American Act guidance should be specifically tailored for design-build construction. Two recommendations were made. The first recommendation was the requirement to have the contractor identify foreign-made material in the representations and certifications of the solicitation be eliminated. The second recommendation was that the Buy American Act, as it applies to the procurement of construction materials under a design-build contract, be reviewed, examined and modified by the FAR Secretariat, as the law as currently written is does not apply to design-build contracts.

Construction Management Services

The issue of whether construction management services should be “contracted out” may be controversial, however there may be instances when a critical position, such as that of project manager, is not readily available within the NAVFAC community and the position must be filled by hiring a contractor to provide the services. NAVFAC must closely review the requirements of FAR 37.104 to determine if a personal services relationship may exist prior to awarding a contract.

Conclusion

Since 1985 the traditional design-bid-build project delivery system has steadily declined while the design-build project delivery system has seen tremendous growth. NAVFAC has continued to utilize the design-build approach and has mandated that by the end of Fiscal Year (FY) 07, 75% of capital improvement projects above \$750,000 will be accomplished by design-build acquisition. The strategy to be employed by NAVFAC is to ensure the most efficient business processes are in place. It is imperative that NAVFAC continue to review commercial best practices and to implement those best practices to streamline the acquisition process thereby decreasing cost and time to completion, allow for flexibility and innovativeness in design, and assure that a quality project is constructed.

I. INTRODUCTION

A. BACKGROUND

Design-Build (DB) is defined as a project delivery system in which the owner contracts with, and holds responsible, one single entity for both design and construction of a project. This method differs from the traditional design-bid-build (DBB) approach in which the owner contracts with an architect to design the project (prepare drawings and specifications) under a design contract and then competitively bids the project among construction contractors to build the facility (American Institute of Architects, 2006). The advantage of using design-build procedures is that the design and construction of the project is the responsibility of a single entity with a single point of responsibility for quality, cost, and schedule; risk is shifted to the design-builder in the areas of design defect and design warranties; guaranteed construction costs are known sooner; total design and construction time may be significantly reduced; and the design-build team is allowed to be creative and innovative in their approach. The use of the design-build approach has grown over the past ten years as owners are discovering it is a useful approach for completing complex projects. According to the American Society of Civil Engineers the traditional design-bid-build project delivery system will fall to 35% in 2015 from 82% in 1985 while the design-build project delivery system will grow from 5% in 1985 to 55% in 2015. The design-build approach can be used on projects from simple office complexes and housing developments to traditional civil infrastructure projects.

Naval Facilities Engineering Command (NAVFAC) has helped pioneer Design-Build acquisition in the federal sector and has over ten years experience in contracting and executing design-build projects. NAVFAC's policy dictates that by the end of fiscal year (FY) 07, 75% of capital improvement projects above \$750,000 will be accomplished by design-build acquisition. The metric used to track the result will be based on dollar value of the total MILCON/MCNR program. In order to achieve this goal NAVFAC strategy is to ensure the most efficient business processes are in place (Capital Improvements Business Line, Design-Build Policy and Guidelines, 2005).

B. PURPOSE

The purpose of this research is to examine current non-DoD design build processes, determine best practices, and analyze the application of these best practices to the award and administration of DoD design-build contracts.

C. RESEARCH QUESTIONS

Naval Facilities Engineering Command (NAVFAC) has pioneered design-build acquisition in the federal sector. Over the past ten years the design-build approach to construction has gained momentum in the commercial sector and is now a useful approach for completing complex projects. To stay abreast of current design-build processes, NAVFAC needs to analyze current commercial design-build processes to see if these best practices can be adopted in the federal sector.

Research questions will focus on:

- *What are current non-DoD design-build processes?*
- *Which of these current non-DoD design-build processes would be considered best practice?*
- *How can these best practices be applied to DoD procurement, specifically NAVFAC.*

D. METHODOLOGY

The research methodology consists of a literature review of non-DoD and NAVFAC design-build processes published in trade journals, books, magazines, internet articles, and DoD policy. In their book, Contract Management Organizational Assessment Tools, Garrett and Rendon discuss the development of their Contract Management Maturity Model (CMMM). Garrett and Rendon state “The Contract Management Maturity Model (CMMM) creates a vision of excellence to help buying and selling organizations focus on the key areas of process improvement.” The key process areas developed under the CMMM are (1) procurement planning, (2) solicitation planning, (3) solicitation, (4) source selection, (5) contract administration, and (6) contract closeout. This six-part model will provide the framework, from a buyer’s

perspective, for comparing and contrasting non-DoD design-build processes with NAVFAC design-build processes. The most efficient business processes/best practices will be identified and analyzed for applicability to NAVFAC design-build acquisition.

Interviews will be conducted with local procurement officials at Monterey Peninsula College and California State University-Monterey Bay regarding current and past design-build projects. Two projects were selected based on location (proximity to the Monterey Peninsula area), the construction occurred on a State university campus, and the cost of each project was over \$10 million. Finally, the information gleaned from the literature review and interviews will be analyzed to determine best design-build practices and how these processes can be adapted to DoD design-build acquisition.

E. ORGANIZATION OF PAPER

Chapter I consists of an overview of the design-build project delivery system and NAVFAC's goals for continued implementation of this process and provides how the research will be conducted through a purpose, research questions, methodology, and organization.

Chapter II serves as an overview of existing non-DoD design build processes utilizing the Contract Management Maturity Model (CMMM). The literature review concentrates on recent articles published in books, trade magazines, and on the internet to determine design-build processes and best practices.

Chapter III serves as an overview of NAVFAC's existing design-build processes utilizing the Contract Management Maturity Model (CMMM). The literature review concentrates on NAVFAC's standard operating procedures and DoD policy.

Chapter IV examines two local State of California publicly funded projects recently completed on the Monterey Peninsula, determines if design-build processes were utilized and, if so, if there are any best practices and/or lessons learned that can be applied to the award and administration of DoD design-build contracts.

Chapter V serves to answer the research questions posed in Chapter I by identifying non-DoD design-build processes and determining which of these current non-DoD design-build processes would be considered best practice. An analysis of the applicability of these best practices to DoD, specifically NAVFAC will be performed.

Chapter VI summarizes the findings of the research and presents recommendations to NAVFAC. Areas for further research are identified.

F. BENEFITS OF STUDY

The benefits to be realized by conducting this study are an increased understanding of commercial design-build practices and how these best practices can be applied to DoD design-build acquisition to ensure that the most efficient business processes are utilized. Analysis of current non-DoD design-build processes will also add to NAVFAC's body of knowledge and will help the acquisition community by providing lessons learned.

G. SUMMARY

This chapter introduced the research on non-DoD design-build acquisition by discussing the background and purpose of the research. Also provided are the research questions, methodology, framework of the report format, and the benefits of the study. The next chapter provides a literature review of non-DoD design-build processes utilizing the Contract Management Maturity Model (CMMM) to discuss contracting processes.

II. LITERATURE REVIEW NON-DoD DESIGN-BUILD PROCESSES

A. CHAPTER OVERVIEW

This chapter serves as an overview of existing non-DoD design build processes utilizing the Contract Management Maturity Model. Design-build acquisition in the private sector differ from design-build acquisition utilized by public agencies (State and Federal) and the design-build process even varies among local and state agencies. This chapter also takes a look at the State of California's Public Contract Code as it applies to the acquisition of design-build. California law permits the use of design-build for public projects, but only with specific authorization from the State Legislature. Design-build has been authorized as an alternative bidding procedure for several counties and for transportation projects. Chapter III takes a look at the NAVFAC design-build process utilizing the same Contract Management Maturity Model.

B. ACQUISITION PLANNING/STRATEGY

Acquisition planning begins with the owner performing a strategic facility planning analysis. Strategic facility planning requires the owner to analyze their current and future facility requirements to determine the appropriate facility development plan for their use. Considerations the owner must undertake during acquisition planning is the method of procurement such as competitive selection (two-phase procurement) or negotiated direct selection (qualification based) based on the project's complexity, funding, design intent, responsibility and risk allocation; project funding; whether there are adequate in-house resources to develop the scope of work; whether to hire a construction manager to oversee schedule, budget, and design changes or whether the oversight can be provided in-house; and contract type (Design-Build Institute of America, 2006).

There are many pricing arrangements (contract types) such as – lump sum, cost-plus, unit price, fixed price, time and materials, Construction Manager (CM) at risk, guaranteed maximum price (GMP), and cost-plus with a guaranteed maximum price (GMP). Guaranteed maximum price contracts are gaining in popularity as this type of

contract vehicle may minimize risks and potential claims and integrates the diverse interests of a complex project. A guaranteed maximum price contract may contain a shared savings clause. This means the contractor assumes the same risk as under a fixed price contract but can share in the savings on the basis of the owner's guarantee of fee and prompt payment of net cost. The sharing arrangement percentage is negotiated. The Construction Manager (CM) at Risk is frequently used for school projects. The construction manager provides assistance to the School's architect during the design phase and becomes the prime contractor during the construction phase. The construction manager awards subcontracts just like a general contractor. The advantage of using construction manager at risk is its emphasis on teamwork and that the builder is involved in the design and decision making process almost from the start. Another advantage is the owner can often be more involved in the selection of subcontractors if desired. The disadvantages are that the builder must be paid for his participation in design, there may be some blurring of the lines of responsibility, and the owner should be involved in more meetings involving the entire team. (Construction Contracts and Delivery Methods, New Hampshire State Department of Education, 2006).

Long-standing relationships/strategic partnerships also play an important part in design-build. For example, Walgreen Company is growing at a fast pace averaging one new store every 17 hours. (McGraw-Hill Construction DesignBuild, Nov/Dec 2005). This fast growth pace is in the hands of a design-builder who can deliver quality retail stores, distribution centers, packaging centers, and offices in a fast and efficient manner. Walgreen Company, like many other companies, has developed a long-term partnership with one design-build entity spanning many years. This partnership is based on shared values and a shared value system.

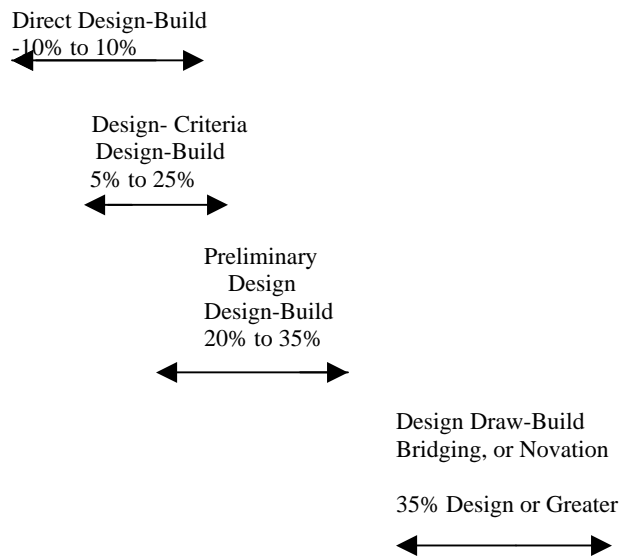
C. SOLICITATION PLANNING

Requirements generation requires planning and the utilization of a design-build process appropriate for the project. In the private sector, requirements-planning utilizes three different approaches to advertising, evaluating, and awarding a contract. The first approach is direct selection (sole source) whereby the design-entity is selected directly by the owner on the basis of such factors as reputation, technical and management

qualifications, past performance, and prior association (DBIA, An Introduction to Design-Build, 2005). The second approach is competitive selection design-build suited for projects that are familiar in nature, have a defined scope, and have been previously constructed by the owner (DBIA Utilizing Competitive Selection, 2005). Proposers are requested to submit a qualitative proposal and a firm price. Examples are office buildings, schools, jails, parking structures, and administration buildings to name a few. The third approach is negotiated design-build procurement used for those projects that are unique and require more extensive project definition, programming, or preliminary design (DBIA, Utilizing Negotiated Selection, 2005). The negotiated approach is used when it is difficult to separate the preparation of the design criteria packages from the development of detailed construction documents and project definition may continue into the detailed design process. Under the negotiated approach two or more design-entities are identified and “short” listed based upon factors such as reputation, capacity, project personnel. The short listed design-build entities are interviewed and evaluated against criteria established by the owner. A single design-build entity is tentatively selected; contract type is selected; contract language and terms are negotiated; and a contract is executed. The contract under this approach is executed in two parts. Part One authorizes design sufficient to define the project and fix the price. Part Two completes the design documents and the construction work. This two-part contract feature allows the owner a convenient check point before committing to complete the project. (Design-Build Institute of America, 2005).

No matter which approach is used, the owner may elect to develop the scope definition and Request for Proposal (RFP) documents in-house or may utilize the services of a design-build consultant. The scope definition is a statement of facility requirements (design criteria package) stated in performance terms and is related to recognized industry standards. Facility requirements included in the design criteria package include functional requirements, facility size and performance requirements, finish requirements, codes and regulatory standards, population and capacity of the building, results of any surveys, or a conceptual building layout.

The level of design contained in a design-build contract varies depending on the owner and project risk - from 10% to 100%. A design at the 10% level may be in the form of an unsolicited proposal from a developer to an owner. Design at the 100% level may include risk for errors and omissions. Complexity and duration of the project may influence the level of design contained in the solicitation. Simple projects completed in a short time frame may contain more design than a project that has long-term operation and maintenance components; these projects will contain less design. Projects with less design will use performance requirements instead of a higher level of design or prescriptive requirements. If an owner wishes to benefit from a true design-build project then the specifications/plans should not be over-designed and should be at the 10% level as shown in the below chart. (U.S. Department of Transportation, Chapter 4: Design-Build, 2006). The chart below shows that a design level of 20% to 35% is not a true design-build project but a process called design-design build (preliminary or conceptual design information is provided in the RFP). A level of design at 35% or greater indicates design draw-build or bridging documents (detailed documents) are included in the solicitation. The figure below shows the different levels of design possible in a design-build scenario.



**Figure 1. Operational Variations, Percentage of Design in RFP (1998-2001,
From Douglas D. Gransberg, James Koch, & Keith Molenaar)**

Design-build projects under the State of California's Public Contract Code (Legaltips.org, 2006) requires the owner, for example the transit operator, to prepare a set of documents setting forth the scope of the project taking into account the size, type, and desired design character of the building, site, performance specifications covering the quality of materials, equipment, and workmanship, preliminary plans or building layouts, or any other information necessary to describe the needs of the owner. Performance specifications and plans are prepared by a licensed design professional registered in the State of California. To prevent an organizational conflict of interest, the design professional developing the criteria or helps develop the request for proposal is not eligible to participate in the competition with the design-build entity.

D. SOLICITATION

Under the best value competitive selection process or the negotiated selection process the owner prepares a Request for Quotation (RFQ) that requests the offeror document their qualification requirements (DBIA Utilizing Competitive Selection, 2005). Best value is defined as the most advantageous balance of price, quality, and performance achieved through competitive procurement methods in accordance with stated selection

criteria. The project is advertised and qualification proposals are received. Structure of the RFQ is shown below.

- a. Description of project to include size and function of facility, approximate budget, and anticipated schedule; selection process and how evaluations will be conducted.
- b. Appropriate design-build experience to include related projects; licensing requirements; bonding capacity and financial strength; organizational resources; minority and disadvantaged business compliance; and dispute history.
- c. Experience of the proposed design-build team to include experience with the proposed facility and building type; performance record consisting of quality, schedule, safety, and cost.
- d. Composition of the proposed design-build team and their past experience working together.
- e. Proposed team's current capacity to manage the project; ability to adhere to a schedule; project approach; innovative and creative problem solving; proposed key project personnel; and project references.
- f. History of disputes and litigation.
- g. The rating system to be used to evaluate proposals.
- h. Pre-proposal conference information.

For the negotiated approach the selection of a qualified design-build team ends the RFQ process. Upon selection of a design-build entity negotiations are conducted to determine contract costs, contract type, contract language to include terms and conditions.

Under the competitive selection process after review and evaluation of each offeror's qualification statements no more than three to five qualified firms are selected to go on to the Request for Proposal (RFP) phase. A Request for Proposal is issued to those firms selected in the qualifications phase. Structure of the RFP is shown below.

- a. General information to include the introduction; RFP schedule; selection procedures; selection criteria to include weighting; budget or cost limitations; and project schedule.
- b. Site information to include description of the site; topographical and boundary surveys; soil investigation data; utility information; and covenants and restrictions on property.
- c. Project requirements to include program summary; functional requirements (goals and objectives); general physical characteristics and building system requirements; performance specifications; warranties; codes and standards; and functional relationship diagrams or conceptual building layouts.
- d. Contract requirements to include design responsibilities; construction responsibilities; owner responsibilities; general conditions; and minority participation.
- e. Requirements for the proposal to be submitted by each offeror consisting of conceptual drawings, specifications, design-build organization, project personnel, quality control program, schedule, and price proposal.

The owner can also consider paying a stipend or honorarium to the unsuccessful offerors. The stipend may be considered if there are quite a few offerors in phase two and the quantity of documents required for proposal submission is high. If the number of proposal submission documents is high, quality design-build teams may choose not to participate. The stipend sends a signal to offerors that the owner is serious about awarding and receiving a quality project.

Design-build projects under the State of California's Public Contract Code requires the owner, for example the transit operator, to identify in the RFP the basic scope of work and needs of the project or contract, the estimated cost range, and other information deemed necessary by the contracting agency to inform interested parties of the contracting opportunity. The RFP invites all interested parties to submit competitively sealed proposals.

E. SOURCE SELECTION

The source selection and evaluation process determines which proposal offers the best value to the owner. Qualitative (technical) proposals submitted under non-DoD processes are evaluated on the basis of quality of design, price, and other discriminating factors such as past experience/past performance, management plan, completion schedule, design solution, life-cycle cost, budgetary plan, environmental sustainability, operation and maintenance costs (life cycle costs), financial capacity, quality of materials/systems or other qualitative factors.

The project owner determines which source selection procedures are appropriate for use on their project. Non-DoD design-build utilizes two different types of source selection procedures. The first type is a qualifications-based or negotiated approach utilized for projects that are complex or are still evolving when the specification package is under development. Since a clear and stable specification package cannot be prepared in great detail, the best-value competitive approach cannot be used. The negotiated approach is advantageous in that the design-builder is involved at the start of the project and is involved in programming, project definition, budgeting, scheduling, detailed design, and construction. The negotiated approach allows one design team to establish program and project criteria in addition to a detailed design. This approach allows for a seamless project from design through construction (Design Build Institute of America, 2005).

The negotiated approach entails a formal process of advertising, down-select of qualified design-build professionals, interviews, selection, and fee negotiation. The process by which the negotiated approach is utilized is established by law for public agencies but is left open for interpretation for private owners. The owner may consider various source selection criteria and will ensure these criteria are contained in the Request for Quotations (RFQ). Source selection factors that may be considered are depth of resources; general reputation; management plan; project organization; current capacity relative to management, personnel and physical resources; financial capability and bonding capacity; previous experience of the design-build team on similar projects; innovation; project approach; and ability to adhere to schedule to name a few. Owner must establish the relative importance of the factors and evaluate each submitted proposal

accordingly. The selection panel is a balanced mixture of design professionals, procurement specialists, owner/user representatives, and other project related professionals.

The below chart shows how proposals under a negotiated procurement may be evaluated.

Design Build Team No.	Design Solution (Weight 10)*	Financial Capability (Weight 6)	Project Approach (Weight 8)	Management Plan (Weight 10)	Total Points
A	4 / 40	5 / 30	4 / 32	3 / 30	132
B	5 / 50	5 / 30	2 / 16	5 / 50	146
C	4 / 40	4 / 24	2 / 16	3 / 30	110

* Criteria Weight

Where: 5 = Excellent
4 = Good
3 = Fair
2 = Poor

Key: Factor Score / Subtotal Points

Figure 2. Negotiated Process (From: Design Build Institute of America)

The second type of non-DoD source selection process involves a best-value competitive approach consisting of a two-phase procurement process. The first phase is the qualification stage where offerors are pre-qualified by experience, financial strength, and organizational resources. The prequalification stage produces a short list of qualified design-build candidates, usually no more than three to five entities. There are five (5) widely used evaluation processes under the best-value competitive approach. They are weighted criteria, adjusted low bid, equivalent design/low bid, fixed price/best design, and meets criteria/low bid. A point system or rating scheme is developed by the owner for evaluation of proposals. Oral presentations may be allowed. The RFP contains the information required by the offeror to submit a proposal.

1. Weighted Criteria - the owner establishes point ratings for qualitative factors and price. Each proposal is evaluated and points are assigned according to the established rating system. Points for price are assigned inversely proportional to the bid amount. Contract is awarded to the offeror with the highest point total.

Proposer	Qualitative Score (80 maximum)	Price Proposal	Price Score (40 maximum)	Total Score (100 maximum)
Firm "A"	51	\$1,629,000	37	88
Firm "B"	63	\$1,546,000	39	92*
Firm "C"	44	\$1,510,000	40	84

*Award to proposer with highest total score.

Figure 3. Weighted Criteria (From: Design Build Institute of America)

2. Adjusted Low Bid – the process is the same as that for weighted criteria. Qualitative (technical) factors are scored on a scale of 0 to 100, totaled, and price divided by the score. This yields an “adjusted bid.” Award is then made to the offeror on the basis of lowest adjusted bid.

Proposer	Qualitative Score	Price Proposal	Adjusted Price
Firm "A"	0.85	\$1,000,000	\$1,178,471 <i>Adjusted Low Bid</i>
Firm "B"	0.95	\$1,300,000	\$1,368,421
Firm "C"	0.50	\$ 800,000	\$1,600,000

*Note: The adjustment to the bid is for selection only. The firm's price proposal is the actual contract amount.

Figure 4. Adjusted Low Bid (From: Design Build Institute of America)

3. Equivalent Design/Low bid – the process is the same as that for weighted criteria and adjusted low bid up to receipt of proposals. Technical proposals are critiqued and each offeror submits specified design changes to make all proposals technically equivalent. Price is adjusted accordingly. The owner evaluates the revised designs and award is made. Contract award can be made with price as the sole emphasis or the most important factor because the proposal evaluation has created relatively equivalent designs (technical leveling).

4. Fixed Price/Best Design – Evaluation criteria are used to rate and score each proposal. The RFP contains the contract price and only qualitative proposals are submitted. Award is made to the offeror with the highest overall score within the stipulated price.

5. Meets Criteria/Low Bid – this source selection process mirrors the traditional bid process and there is very little creativity in the design. A very specific outline or conceptual designs are issued as part of the design criteria package. Qualified firms submit proposals; proposals are evaluated; and the firm with the low price proposal that meets the basic criteria receives contract award. The disadvantage to this source selection method is that multiple design solutions are not submitted and the elimination of creativity and innovation in the design process.

1. California Public Contract Code

The State of California's Public Contract Code, as it pertains to design-build source selection requirements, was also reviewed (LegalTips.org, 2006, <http://www.legaltips.org>). According to the State of California's Public Contract Code the RFP must include all significant factors that the agency reasonably expects to consider in evaluating proposals to include cost or price and all non-price related factors; the methodology and rating or weighting scheme that will be used in evaluating competitive proposals and whether proposals will be rated according to numeric or qualitative values; the relative importance or weight assigned to each of the factors identified; and whether discussions or negotiations will be held. Criteria used in the evaluation of proposals may include the proposed design approach, life-cycle costs, project features, and project functions.

Section 14661 of the State of California's Public Contract Code describes the competitive prequalification and selection process for design-build entities, including any subcontractors listed at the time of bid, as well as the recommended manner in which the winning entity will be selected.

Prequalification is limited to consideration of the following criteria:

- a. Possession of all required licenses, registration, and credentials in good standing that are required to design and construct the project.
- b. Submission of evidence that establishes that the design-build entity members have completed, or demonstrated the capability to complete, projects of similar size, scope, or complexity, and that proposed key personnel have sufficient experience and training to competently manage and complete the design and construction of the project.
- c. Submission of a proposed project management plan that establishes that the design-build entity has the experience, competence, and capacity needed to effectively complete the project.
- d. Submission of evidence that establishes that the design-build entity has the capacity to obtain all required payment and performance bonding, liability insurance, and errors and omissions insurance, as well as a financial statement that assures the department that the design-build entity has the capacity to complete the project.
- e. Provision of a declaration certifying that applying members of the design-build entity have not had a surety company finish work on any project within the last five years.
- f. Provision of information and a declaration providing detail regarding any construction or design claim or litigation totaling more than five hundred thousand dollars (\$500,000) or 5 percent of the annual value of work performed, whichever is less, settled against any member of the design-build entity over the last five years.
- g. Serious violations of the Occupational Safety and Health Act, settled against any member of the design-build entity.
- h. Violations of federal or state law governing the payment of wages, benefits, or personal income tax withholding, or of Federal Insurance Contributions Act (FICA) withholding requirements, state disability insurance withholding, or unemployment insurance payment requirements, settled against any member of the design-build entity over the last five years.

- i. Violations of the Contractors' State License Law.
- j. Any conviction of any member of the design-build entity of submitting a false or fraudulent claim to a public agency over the last five years.
- k. Provision of a declaration that the design-build entity will comply with all other provisions of law applicable to the project.

California law also requires that design-build competition be based upon performance, price, and other criteria set forth in the solicitation for proposals. Technical criteria and methodology, including price, is established to evaluate proposals and this information is included in the request for proposal. Award is made to the design-build entity whose proposal is judged as providing the best value in meeting the interest of the department and meeting the objectives of the project. A project with an approved budget of ten million dollars or more may be awarded. Criteria used in the evaluation of proposals may include, but need not be limited to, items such as proposed design approach, life-cycle costs, project features, and functions. Award will be made to the design-build entity whose proposal is judged as providing the best value, for the lowest price, meeting the interests of the department and meeting the objectives of the project.

A design-build competition based upon program requirements and a detailed scope of work, including any concept drawings and specifications may be awarded on the basis of the lowest responsible bid. A project with an approved budget of two hundred fifty thousand dollars (\$250,000) or more may be awarded.

F. CONTRACT ADMINISTRATION

In the ideal design-build situation after the contract has been awarded the owner walks away from the project and comes back when construction is complete. However, this is not an ideal world so the owner may decide to handle contract administration functions with an in-house team or may hire a construction manager to keep track of design, cost, and schedule. Successful administration of a design-build contract occurs when the design-build entity “owns” the details of the design. The designer of record (DOR) then designs to schedule and budget. The owner’s responsibility reverts to

“reviewing” the design for contract compliance rather than conducting a technical review. Design charrettes may be scheduled throughout the design process allowing all stakeholders the opportunity to review the design and to make comments. A charrette is an urban planning technique for consulting with all stakeholders. Charrettes are typically intense, possibly multi-day meetings involving municipal officials, developers and local residents. A charrette promotes joint ownership of the solution and attempts to diffuse traditional confrontation between residents and developers. Time-savings occur as construction and design overlap and re-design time is eliminated. This is defined as “fast-track” construction. Fast track construction techniques may be applied that allow construction to begin in advance of working drawings being fully completed (Design-Build Institute of America, 2005).

The design-build entity is responsible for quality control as they own the design details while the owner is responsible for quality assurance. Since the design-build team owns the design details there aren’t any limitations on products used in the construction of the building, i.e., foreign vs. domestic unless so prohibited in the contract. The owner may stop work on the project if the work is not proceeding as required or if the contractor is not adhering to his quality control plan.

The contract might also offer incentives/bonuses to the design-build constructor for meeting pre-determined contract milestones or the contract might contain a shared savings clause. For example, the design-build construction team renovating the Utah State Capitol earned quarterly bonuses for meeting milestones such as safety, budget, quality and relationships. A point system was used with 100% being the ultimate score.

G. CONTRACT CLOSE-OUT

Contract closeout involves final inspection of the project, punch list requirements, final cleanup of the premises, releasing the lien, payment of the final invoice, commissioning the building, receipt of Operation and Maintenance manuals and as-built drawings.

The literature review did not identify any best practices within Contract Closeout.

H. CHAPTER SUMMARY

The Contract Management Maturity Model was utilized to present an overview of existing non-DoD design-build processes. The literature review conducted revealed several non-DoD design-build best practices. These best practices are design requirements, contract type/incentives, source selection, use of foreign-made materials, and long term relationships. Chapter III serves as an overview of the Naval Facility Engineering Command's (NAVFAC) design-build processes utilizing the Contract Management Maturity Model to discuss contracting processes.

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III. LITERATURE REVIEW NAVFAC DESIGN-BUILD PROCESSES

A. CHAPTER OVERVIEW

This chapter serves as an overview of existing NAVFAC design-build processes utilizing the Contract Management Maturity Model. The Naval Facilities Engineering Command (NAVFAC) is the single touch-point for all NAVFAC public works, engineering, and acquisition support. (Naval Facilities Engineering Command Strategic Plan 2005-2011). NAVFAC oversees two Echelon III Commands, NAVFAC Atlantic and NAVFAC Pacific, with Facility Engineering Commands (FECs), and Integrated Product Teams (IPTs) and Engineering Field Offices radiating outward.

B. ACQUISITION PLANNING/STRATEGY

The decision to use design-build procedures is determined during acquisition planning and is based on (1) whether the project scope is well defined; (2) project requirements can be stated in performance terms; (3) value of the project is sufficient to attract competition; (4) competition will not be restricted due to location of project, security requirements, or other factors; (5) little or no design is required to advertise the design-build contract; (6) a different acquisition method would not produce better pricing, life cycle cost or completion time; (7) there aren't any plans or specifications from other similar projects that can be re-used with little effort; and (8) the client approves using the design-build approach (LANTDIV (Interim) Design-Build Guide, 2004)

Acquisition planning for a Military Construction (MILCON) contract begins with the development of the DD Form 1391, "FY___ Military Construction Data." The DD Form 1391 justifies to Congress why the project is required and includes information such as a scope of work, cost estimate, equipment considerations, design information, schedule, etc.

There are four types of design-build contract processes the Contracting Officer may choose to utilize. They are the (1) standard design-build process, (2) multiple award construction contract (MAAC) streamlined design-build process, (3) 8(a) negotiated

process (sole source), and (4) request for technical proposals. The contract type is typically firm fixed-price (Capital Improvements Business Line, Design-Build Policy and Guidelines, 2005).

During acquisition planning the Contracting Officer may choose to use two-phase design-build selection procedures (FAR 36.3). Under the two-phase process technical qualifications are evaluated and the competitive range is limited to a maximum of five qualified proposers (Phase 1). These proposers continue to phase two in which technical and price proposals are evaluated. The contract is awarded based upon best value to the Government, taking into consideration technical and price factors.

The determination to use a two-phase approach is based on (1) whether the Government anticipates receipt of offers from at least three firms; (2) whether offerors will incur a substantial amount of expense in preparing offers since some design work must be performed before price or cost proposals are developed; (3) the extent to which the project requirements have been adequately defined; (4) the time constraints for delivery of the project; (5) the capability and experience of potential contractors; (6) the suitability of the project for use of the two-phase selection method; (7) the capability of the agency to manage the two-phase selection process; and (8) other criteria established by the head of the contracting activity.

Another decision to be made during acquisition planning is the composition of the Government's design-build team. The team is established with appropriate expertise that will execute the project from development of the requirement through acceptance of the facility. The team consists of individuals from engineering, public works, A&E, environmental, legal, information technology, real estate, customer, safety, and contracting departments.

C. SOLICITATION PLANNING

The Contracting Office develops, either in-house or by contract, a scope of work that defines the project and states the Government's requirements. Design-build criteria is the most critical component of the solicitation and must clearly specify the customer's needs and the project criteria. Project criteria may include civil/site work, geotechnical reports, landscaping, architectural, structural, room requirements, fire protection, and

mechanical/electrical systems. In addition to the project criteria the scope of work may include preliminary and/or partial design drawings, budget parameters, and schedule or delivery requirements. During scope development the end-user or client is involved in providing information needed to develop the program requirements. NAVFAC may prepare the solicitation documents in-house or via an Architect & Engineering firm (A/E). The level of completion of the solicitation design documents varies based on project requirements and the acquisition strategy. Design-build RFP solicitations can incorporate minimal design drawings in order to take advantage of contractor ingenuity or can contain “bridging” documents to reduce the Government’s risks involved in “competitive price” acquisitions. “Bridging” documents incorporate substantial design drawings. These documents may include 100% complete civil drawings and 35% complete architectural, mechanical, and electrical drawings (LANTDIV (Interim) Design-Build Guide, 2004). Bridging documents can also be used when the contracting office does not have sufficient technical staff with which to develop the solicitation design documents.

D. SOLICITATION

NAVFAC utilizes four (4) distinct design-build processes depending on the size, nature, and risk of the project. These are the standard design-build process, the multiple award construction contract (MAAC) streamlined design-build process, sole source negotiated process with an 8(a) contractor, and Request for Technical Proposals (RFTP). NAVFAC uses a web-based tool called the NAVFAC Design-Build Master (NDBM) to construct the sections of the RFP. This is a six-part template that is used for any of the four processes and is not dependent on project size (Capital Improvements Business Line, Design-Build Policy and Guidelines, 2005).

1. Under the Standard Design-Build process several contractors compete in a single source selection. The government facility requirements such as operational, functional, and space planning requirements; systems; and material requirements are fully developed and are included in the Request for Proposal (RFP). Also included in the RFP are soil boring logs, environmental reports, or other information that may benefit the contractor. NAVFAC may utilize the services of an architect & engineering firm (A/E)

to develop the government's requirement, sometimes up to the 35% level, and includes these documents and concept drawings in the RFP. This information facilitates the winning contractor to commence design and construction quickly.

2. Under the Multiple Award Construction Contract (MACC) Streamlined Design-Build process a task order on an existing MACC contract is issued. The task order may be awarded without a technical design solution and the contractor finalizes the owner's requirements after contract award. Under the streamlined process a technical solution, i.e., drawings and calculations are not required for selection of a design-build contractor. The project must be low risk and the type of facility to be built already has facility criteria developed. The criteria are prescriptive in nature and a design solution is not required for contract award. Facility types include Bachelor Quarters, Child Development Centers, DoD schools, and administrative facilities.

3. The third design-build process is a sole source negotiated scope with a contractor who is certified under the Small Business Administration's 8(a) program and the project cost is less than \$3 million. Selection of the 8(a) contractor is based on the contractor having sufficient design-build qualifications. This process allows for flexible scope discussion with contractors prior to contract award. This process is called "Partnering the Proposal." Technical staff, the customer, and the contractor meet to define the project scope during the proposal phase. The contractor conducts surveys and field investigations and develops a concept design solution at the 15% level. The contractor's final proposal is reviewed by the government for acceptability and negotiations are conducted on scope and cost. The final design package to include costs are reviewed and accepted prior to issuing a notice to proceed for construction.

4. Finally, the request for technical proposal process evaluates, in the first step, technical proposals without prices. All proposers that comply with the requirements of the RFTP are allowed to compete in step two. The evaluation process is pass/fail and the contract is awarded based on lowest price.

The solicitation is developed using the Web-based Design-Build Master (WBDM) and contains six parts. The Web-based Design-Build Master is an internet based program

that allows the technical and contracting staff to develop the solicitation using previously written specifications that may be tailored to the instant requirement. Part 1 of the Web-based Design-Build Master contains the proposal forms and documents, Part 2 contains the general requirements, Part 3 contains the project program, Part 4 consists of the performance technical specifications, Part 5 consists of prescriptive specifications (rarely used) and Part 6 contains all attachments.

E. SOURCE SELECTION

Whether using the standard design-build process or the Multiple Award Construction Contract (MACC) Streamlined Design-Build process, the Contracting Officer may elect to use the two phase RFP process. One solicitation may be issued covering both phases, or two solicitations may be issued in sequence. Proposals are evaluated in Phase One to determine which offerors will submit proposals for Phase Two. One contract is awarded using competitive negotiation.

Phase One of the solicitation process includes the scope of work; phase-one evaluation factors, including technical approach (but not detailed design or technical information), technical qualifications, such as specialized experience and technical competence, capability to perform, and past performance of the offeror's team (including the architect-engineer and construction members); and other appropriate factors (excluding cost or price related factors, which are not permitted in Phase One); phase-two evaluation factors; and a statement of the maximum number of offerors that will be selected to submit phase-two proposals. The maximum number specified should not exceed five (5) unless the contracting officer determines, for that particular solicitation, that a number greater than five is in the Government's interest and is consistent with the purposes and objectives of two-phase design-build contracting. After evaluation of phase-one proposals, the contracting officer selects the most highly qualified offerors and requests that only those offerors submit phase-two proposals.

Phase Two of the solicitation is prepared in accordance with Part 15 of the Federal Acquisition Regulation (FAR), and includes phase-two evaluation factors. Examples of potential phase-two technical evaluation factors include design concepts,

management approach, key personnel, and proposed technical solutions. Phase Two of the solicitation requires submission of technical and price proposals, which are evaluated separately.

NAVFAC policy requires that technical proposals be ranked and supported by a written narrative explaining any significant differences. Per Naval Facilities Engineering Command Acquisition Supplement (NFAS), Subpart 15.3, Source Selection, points, colors, or alphabetical ratings are not to be utilized. Offers are to be evaluated in accordance with the evaluation factors identified in the source selection plan and the RFP. No other factors are to be used. Specific strengths, weaknesses, and deficiencies using adjectival descriptions are identified in the written narrative. Adjectival descriptions used are Exceptional (significantly exceeds requirements/objectives of the RFP); Good (exceeds some requirements/objectives of the RFP); Acceptable (meets requirements/objectives of the RFP); Unacceptable (significantly fails to meet requirements/objectives of the RFP); and Neutral (used for past performance only and means that an offeror has no relevant past performance history). An overall risk assessment of each technical proposal is determined which best describes the level of performance risk for each proposal. Risk assessment is rated as Very Low, Low, Moderate, or High. Technical proposals are then ranked.

F. CONTRACT ADMINISTRATION

The goal of contract administration is to integrate the design and build process to complete a quality facility. Standard operating practices include partnering, post award orientation conference, production meetings, scheduling, quality management, design review by stakeholders at preset milestones (usually 35%, 65%, 100%), design acceptance, submittals, permits, safety, invoices and payment, contractor performance evaluation, modifications, change orders, dispute resolution, final acceptance and turnover, facility commissioning and receipt of as-builts. Meetings may be held during the design phase with the Contractor and his design team to discuss progress of the design. These progress meetings are not to be confused with an “on-going constant review process” as the design is still required to be submitted at pre-set milestones.

These types of meetings are encouraged to facilitate communication and complete understanding of the Government's requirements (LANTDIV (Interim) Design-Build Guide, 2004).

In order to expedite construction frequently called "fast-tracking", the contract may permit the contractor to propose a phased design submittal plan. Generally, there are three possible phases: (1) demolition or site clearing, (2) site and site utility development (probably includes building foundation and slab) and (3) building construction. Expediting construction is an important concern, especially when the design process is behind schedule. In order for fast-tracking to occur the final design package for each fast-track feature of work must be reviewed and accepted by the Administrative Contracting Officer (ACO).

Contract administration begins with the post-award orientation conference that integrates the contractor and client representatives into the project team and attempts to achieve consensus on issues and concerns of the phase two technical proposal.

G CONTRACT CLOSEOUT

The goal of contract closeout is to ensure that all contractual and administrative requirements are complete. The contractor is responsible for submitting a complete set of design drawings that incorporate as-built construction on a CAD CD-ROM disk. Contractor is also responsible for submitting Operation & Maintenance Support Information (OMSI) and other maintenance information; warranty documents; a schedule of second season testing, adjusting, balance, and start-up for HVAC equipment; closeout of permits; contractor's final release of claims; and submission of a final invoice.

H. CHAPTER SUMMARY

The Contract Management Maturity Model was utilized to present an overview of NAVFAC's design-build processes. In the next chapter information is presented regarding two local State of California publicly funded projects recently completed on the Monterey Peninsula. Case analysis will be utilized to determine if design-build processes were utilized and, if so, if there are any best practices that can be applied to the award and administration of DoD design-build contracts.

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IV. CASE STUDY

A. CHAPTER OVERVIEW

The purpose of this chapter is to examine two local State of California publicly funded projects recently completed on the Monterey Peninsula, determine if design-build processes were utilized and, if so, if there are any best practices and lessons learned that can be applied to the award and administration of DoD design-build contracts. The two projects were selected based on location (proximity to the Monterey Peninsula area), the construction occurred on a State university campus, and the cost of each project was over \$10 million.

B. BACKGROUND OF RESPONDENTS

1. California State University-Monterey Bay (CSUMB)

The California State University-Monterey Bay (CSUMB) is a four-year accredited university that opened in July 1994 on the former Fort Ord Army base. During the past 12 years the campus has been transformed from a 77-year old military outpost into a full-fledged university. Various construction projects have been completed since the campus opened its doors in July 1994 – North Quad housing being just one of the projects. Current projects in various planning stages include a new library and technology center.

2. Monterey Peninsula College (MPC)

Monterey Peninsula College (MPC) opened in September 1947 in Monterey, California and is a two-year accredited junior college belonging to the California Community Colleges district. The Monterey Peninsula College Library Technology Center was completed in the spring of 2003 at a cost of \$12,150,000 using State funds. In November 2002 a local bond measure was approved to fund \$145 million for improvements to the college. Additional funds to support the entire program will be sought from State and Federal programs as well as from the MPC Foundation fundraising efforts. Monterey Peninsula College hired a construction management firm to perform all its contracting and construction management functions for construction of the Library

Technology Center and future bond improvement projects. The MPC Bond Oversight Committee sent out an RFP to firms interested in performing construction management services for the college. Interested firms submitted references/past experience on similar projects for construction management services. The Oversight Committee checked references/past performance and conducted interviews with the finalists. After interviews were conducted the Oversight Committee selected a construction management firm to manage the entire contracting process from procurement through construction and contract closeout. The construction management firm is also in charge of the general obligation bond funds for each project and makes progress payments to the construction firm for work-in-place.

C. RESEARCH QUESTIONS/RESULTS

A questionnaire was sent to the Project Manager for the construction management firm at MPC and to the CSUMB Planner requesting they describe their design-build process from the planning stage through contract closeout. The respondents were asked to discuss the decision process for choosing design-build over CM at Risk or other acquisition methods; discuss the level of design included in the RFP documents; discuss solicitation procedures, source selection procedures, contract administration, and contract closeout.

1. California State University-Monterey Bay

CSUMB did not provide any feedback to the questionnaire. Literature was obtained from the California State University website where design-build guidelines and model RFPs are published by the Construction Management Division. A synopsis of design-build guidelines for California State Universities is provided in the following paragraphs.

No information was available on the website regarding the decision process for selecting design-build over CM at Risk or other acquisition methods nor was any information provided regarding the level of design included in the RFP documents.

2. Request for Proposal

The Request for Proposal (RFP) describes the project in terms of maximum cost, design objectives, minimum acceptable standards of construction, and solicits proposals from qualified and experienced contractors to both design and construct the project. Each proposer is required to use California state licensed architects and engineers to prepare the design and all offerors are expected to adhere to all requirements. The RFP requires each offeror to submit a technical proposal that will produce the best overall project for the intended purpose within the funds available. The technical proposal is an integral part of each proposal and, when reviewed and evaluated by the Trustees, is used in the selection of the contractor for contract award. Proposals are accepted only from proposers who have been pre-qualified. The technical proposal may contain the technical proposal summary statement, renderings, architectural site plan, utilities site plan, landscaping site plan, floor plans, structural plans, typical elevations and details, typical cross sections, mechanical, electrical, schedule and specifications. The cost proposal indicates the maximum cost for the development of the project.

3. Evaluation Process

The evaluation/selection process utilized is a best value approach. Technical proposals are evaluated according to the criteria shown below and quality points are assigned. The criteria is customized for each project. An example follows:

1.	Site Design	Total Points	300
A.	Building Grouping/Orientation	150	
	Campus Integration		
	Climatic		
	Privacy/Views		
	Theme Housing separation		
	Community/Multi-Purpose Bldg. location		
B.	Circulation	75	
	Pedestrian (Tenant/Visitor/Disabled)		
	Vehicular/Parking/Bike		
	Emergency/Delivery/Garbage Access		
	Lighting/Signage		
C.	Landscape	75	
	Function (Active/Passive space)		
	Aesthetic		
	Materials-Climatic Compatibility		
	Materials-Campus Integration		

		Terrain/Screening		
2.	Housing Design	Total Points	500	
A.	Dwelling Units-Interior Function (Adequate floor area) Aesthetic Finishes/Equipment Privacy (Acoustical)	200		
B.	Dwelling Units-Exterior Massing/Fenestration/Roof design Function (Entry/Balcony) Materials Selection (Sustainability/Compatibility)	200		
C.	Community/Multi-Purpose Building Function Aesthetic	100		
3.	Engineering /Presentation	Total Points	200	
A.	Site Utilities	25		
B.	Mechanical Systems/Equipment	25		
C.	Electrical Systems/Equipment	25		
D.	Telecommunications/CATV/Fire Alarm	25		
E.	Specifications	50		
F.	Proposal (Clarity/Quality)	50		
		Grand Total Points	1,000	

Cost Proposals are evaluated using the following equation to determine the apparent finalist:

$$\frac{\text{Cost Proposal}}{\text{Quality Point Value}} = \text{Cost/Unit Quality}$$

The lowest cost per unit of quality is determined and the apparent finalist is announced.

EXAMPLE:	Proposal 001 -	$\frac{\$11,500,000 \text{ cost}}{800 \text{ quality}}$	=	14,375.0 cost/quality
	Proposal 002 -	$\frac{\$11,500,000 \text{ cost}}{900 \text{ quality}}$	=	12,777.7 cost/quality
	Proposal 003 -	$\frac{\$10,000,000 \text{ cost}}{700 \text{ quality}}$	=	14,285.7 cost/quality

Figure 5. State of California Evaluation Criteria (Adapted from Website)

Contract administration is performed with in-house staff consisting of inspectors and contracting personnel. Contract closeout consists of final inspection, receipt of

Operation and Maintenance manuals/training, commissioning of the facility, receipt of as-built drawings, and final payment.

4. Monterey Peninsula College (MPC)

The MPC Project Manager informed us that none of their past or future construction projects are considered for design-build even though the value of the contract is over \$10 million. Literature about design-build guidance for community colleges was obtained from the State Chancellor's website. As a result of Assembly Bill 1000, enacted in January 2003, this legislation allows only three community college districts to use design-build procedures and allows the State Chancellor to approve five (5) other design-build projects. The local community college district is not one of the three districts allowed to use design-build procedures. Instead the local community college utilizes design-bid-build processes. A search of the California Community Colleges Chancellor's Office website provided the researcher with the design-build guidelines for California Community Colleges. A synopsis of design-build guidelines for community colleges is provided in the following paragraphs.

5. Project Selection

Several factors are considered when a project is selected for design-build. New construction projects are a better fit for design-build than are renovation projects due to the possibility of encountering differing site conditions or hazardous materials in older buildings. Time and cost savings may also not be realized if work is on-going in occupied buildings. Other factors to be considered when selecting a project for design-build include: (1) projects that have an approved environmental impact report prior to contract award, (2) there are clear architectural program, goals, and objective, (3) the district has the ability to manage a design-build project, (4) and contracts awarded with district funds vice state funding.

A design-build strategy is formulated taking into consideration the capabilities of the design and construction firms in the local community. There are several strategies that can be chosen – traditional design-build, modified design-build (bridging), assignment, and pre-qualifying pools. Under the traditional design-build method the

design-build entity forms its own team of architects and engineers and is responsible for the entire design. Under the modified design-build method the community college hires a design team to develop the project program and preliminary drawings/specifications. A Request for Proposal (RFP) is issued with these documents to a group of pre-qualified design-build teams who complete the construction drawings/documents and are the design professionals of record. The assignment method requires the district to commission a design team and this design team is assigned to the general contractor who successfully competes for the project; the project is then completed by the newly formed design-build entity. Pre-qualifying groups require two distinct groupings: one grouping for the design team and the other grouping for general contractors that perform the work. Once the two groupings are established the district directs the general contractors to formulate their design-build teams using one of the design teams from the pre-qualified list.

Potential design-build entities are required to be pre-qualified prior to issuance of the Request for Proposal. Information required for pre-qualification may include geographic location of the design-build entity, list of previous projects the members of the design-build entity have worked on together, list of previous projects similar to the proposed project, specific personnel assigned to the project, recent client list, etc. Qualifications may be evaluated to determine if all design-build entities may propose on a project or if the design-build entities' qualifications will be ranked allowing only a specified number to submit proposals (short listing).

6. Request for Proposal (RFP)

The Request for Proposal contains key elements such as project program, site analysis, project description, performance specifications or prescriptive specifications, drawings, reports, performance requirements, accommodation for future expansion, joint-use with the community, technology standards, project quality, sustainability goals, budget parameters, schedule requirements, submittal requirements, and selection process.

7. Evaluation Process

The evaluation process must be in accordance with Assembly Bill (AB) 1000 which allows a numeric or qualitative rating of proposals. The evaluation/selection process is limited to lowest responsible bid or best value. Best value selection process allows non-price factors to be utilized as part of the evaluation criteria. Non-price factors include design approach, life cycle costs, project features and project functions. Per AB 1000, at least 50% of the total weight of selection criteria will be based on the criteria factors of price, technical expertise, life cycle costs over 15 years or more, skilled labor force availability, and an acceptable safety record. Each factor represents at least 10% of the total weight or consideration given to all criteria factors. The second evaluation process is “lowest responsible bid” selection process where low price determines the successful, pre-qualified offeror.

The community college district may retain the services of an architect, structural engineer or construction management firm to monitor the work and determine if the work complies with the requirements of the RFP and the project schedule. Responsibilities of the construction professional are review of the proposed project schedule; review of design documents for compliance with the district’s requirements; oversight of the design-build entity’s quality control program; selection of project inspector; review of payment applications; review construction progress vs. schedule; negotiation of change orders; and final closeout of the project.

D. CHAPTER SUMMARY

This chapter began with a brief background of the colleges selected to participate in an interview process. It was revealed that Monterey Peninsula College does not procure design-build services for construction of their facilities. A procurement official from California State University-Monterey Bay was not available to participate in the interview. A literature review of design-build processes for the community college and the university was conducted by accessing the California State University website and the State Chancellor’s website. The literature review conducted revealed one design-build best practice from Monterey Peninsula College: contract management. The next chapter will compare non-DoD best practices with DoD design build processes and determine

which of these current non-DoD design-build processes would be considered best practice, and answer the research question “How can these best practices be applied to DoD procurement, specifically NAVFAC.”

V. COMPARISON OF NON-DoD BEST PRACTICES WITH DoD DESIGN BUILD PROCESSES

A. CHAPTER OVERVIEW

The purpose of this chapter is to identify non-DoD design-build processes from the literature review, determine which of these current non-DoD design-build processes would be considered best practice, and answer the research question “How can these best practices be applied to DoD procurement, specifically NAVFAC.” The literature review has identified several commercial best practices such as design requirements, source selection, long-standing relationships/strategic partnerships, contract incentives, foreign-made materials, and construction management services. The researcher will discuss each best practice and determine its applicability to NAVFAC. The case analysis of two local State college projects revealed their procurement model closely mirrors that of the Federal government. A discussion of commercial best practices and an analysis of their applicability to Government design-build procurement is presented below.

Lessons learned from the Pentagon Renovation Program will be discussed as they apply to design requirements and contract incentives. The Defense Authorization Act of Fiscal Year 1991 transferred control of the Pentagon Reservation from the Administrator of General Services to the Secretary of Defense. Under the same Act, Congress established the Pentagon Reservation Maintenance Revolving Fund for the expressed intent of renovating the Pentagon. The Pentagon Renovation & Construction Program personnel are responsible for developing design guidelines and criteria, preparing the Reservation Master Plan, and contracting for design-build construction services. This model is on the cutting edge of acquisition of design-build. The acquisition strategy published by the Pentagon Renovation Program states “The Pentagon Renovation Program continues to develop and institutionalize revolutionary construction business practices that are performance-based and results-oriented.” Major projects undertaken through this program “utilize state of the art acquisition reform techniques and incentive structures to maximize limited budgets and promote performance and behavior necessary to make the projects successful...” (Pentagon Renovation & Construction Homepage, <http://renovation.pentagon.mil/acquisition>).

B. DESIGN REQUIREMENTS

The most important process in design-build procurement is that of the level of design contained in the contract and how the Government's needs are communicated to the offeror. Level of design ultimately dictates cost, schedule, flexibility, creativity and innovativeness of the design. The literature review revealed there are different levels of design: 10% design (direct design-build), 5% to 25% (design-criteria design-build), 20% to 35% (design/design-build), and 35% or greater (design draw-build or bridging). The ideal level of design is at the 10% level.

NAVFAC utilizes a design approach in its MILCON and MACC contracts at the 35% level called design/design-build or bridging. Design/design-build divides the project into two phases. In phase one NAVFAC retains a design professional (A/E) to develop the design to a preliminary level to include specifications, drawings, and standards; the design-build entity is not involved at this stage of the design. In the second phase, design-build teams compete for the contract to complete the working drawings and perform construction. The design/design build method eliminates some of the advantages of the true design-build approach. Creativity and innovation are tempered as the Government has already determined the basic design solution prior to selection of a design-build team. The design and concepts created by the A/E in phase one determine many of the design and functional aspects of the project for which the design-build team will take ultimate responsibility and liability. The chances for a dispute may increase. Ambiguity between design concepts and drawings provided in the RFP may also conflict with functionality requirements. The cost of a project under design/design build is not easily determined until the design-build team has an accepted design, which makes the management of the design/construction budget more difficult for the constructor. There is a potential for re-design, cost overruns, change orders, and schedule slippage. This is due to the fact that a design-build team submits its bid in phase two of the RFP process but bases its bid on the design concept included in the RFP. Finally, in true design-build the project schedule may be accelerated, fast-track construction may be undertaken, long lead items may be procured and field operations may begin long before the 35% design is completed. Fast-tracking facilitates earlier completion of certain elements of the project by allowing construction to proceed concurrently with design. NAVFAC routinely wants

an accepted design before allowing construction to proceed. Only when the design process starts to lag and there is potential for schedule slippage does NAVFAC allow construction to begin concurrent with design.

The acquisition team for Pentagon Renovation Program used true performance-based requirements in their RFP for renovation of Wedges 2 through 5 of the Pentagon building. Technical requirements for the performance of all architectural and building systems were included in 16 pages in the solicitation. The 16 pages represented the results expected in renovating the spaces. In addition, reviews of the design at the 35%, 65%, and 95% level were replaced with an ongoing, constant review process that increased owner involvement.

Successful project completion is based on the design content contained in the contract. NAVFAC includes performance-based specifications, concept drawings, and Navy standards in their MILCON and MACC contracts but these specifications are at the 35% level and are too detailed. This level of detail ultimately leads to conflicts within the drawings and specifications themselves. NAVFAC should follow the Pentagon Renovation Program's design-build initiatives and replace 35%, 65% and 100% design reviews with an ongoing, constant review process that increases owner involvement thereby allowing NAVFAC to rely solely on performance specifications and a level of design closer to the 10% level to achieve the desired outcome. This "ongoing, constant review process" also mirrors the commercial sector's design charrette concept allowing all stakeholders the opportunity to review the design and to make comments before the design is submitted to the Owner. A charrette promotes joint ownership of the solution and attempts to diffuse traditional confrontation between the stakeholders. NAVFAC's contracts should include facility requirements stated in performance terms and related to recognized industry standards. Facility requirements would include site location, square footage, minimum material specifications, and minimum performance criteria. Performance specifications should also include commercial code and standards that establish minimum construction requirements. Codes could be augmented with specific Executive Order requirements such as Anti-Terrorism and Force Protection (ATFP), sustainable design, and Leadership in Energy and Environmental Design

(LEED). Regional market conditions could be utilized to determine minimum quality requirements. Performance specifications should detail the desired outcome for the project in terms of goals, challenges, and problems NAVFAC wants addressed in the design. This would allow the design-build team the flexibility to how best to achieve the desired outcome. NAVFAC should use discretion when determining the level of design and should not impose restrictions on the design-build team. The NAVFAC project team must become aware of the different levels of design and consider the advantages/disadvantages of each prior to including specifications and design concepts in the contract. Flexibility in design decisions will enable the design-build team to provide solutions that take advantage of their unique strengths and experience. Resultant benefits include cost savings, faster project completion, and a single source for design and construction. At a NAVFAC Workshop, AIA 2005 Convention, held 17 May 2005, a working paper was written outlining a new design-build procurement process titled “Market Style Design-Build”. One of the outcomes proposed by this working group was to encourage construction speed and minimize Government delay by altering government oversight of design and construction. One recommendation made by the working group, was that all government quality assurance design reviews be performed in parallel with construction by the contractor. This means that the contractor would not have to wait for formal government acceptance of design submittals and could begin construction when the contractor obtained Designer of Record (DOR) professional signatures, obtained contractor design quality control/quality control approvals, and that the design submittal was forwarded to the Government.

C. SOURCE SELECTION

1. Evaluation Process

The literature review revealed that many different types of evaluation processes are utilized in the commercial sector and at the State level with which to evaluate and score proposals. These evaluation processes are weighted criteria, adjusted low bid, equivalent design/low bid, fixed price best design, and meets criteria/low bid. While all of these evaluation processes have merit in the commercial sector they cannot be

considered for use by NAVFAC. NAVFAC policy requires that technical proposals be ranked and supported by a written narrative explaining any significant differences. Per Naval Facilities Engineering Command Acquisition Supplement (NFAS), Subpart 15.3, Source Selection, points, colors, or alphabetical ratings are not to be utilized. Specific strengths, weaknesses, and deficiencies using adjectival descriptions are identified in the written narrative. Adjectival descriptions used are Exceptional (significantly exceeds requirements/objectives of the RFP); Good (exceeds some requirements/objectives of the RFP); Acceptable (meets requirements/objectives of the RFP); Unacceptable (significantly fails to meet requirements/objectives of the RFP); and Neutral (used for past performance only and means that an offeror has no relevant past performance history). An overall risk assessment of each technical proposal is determined which best describes the level of performance risk for each proposal. Risk assessment ratings are: Very Low, Low, Moderate, or High.

The non-DoD evaluation process titled “Equivalent Design/Low Bid” relies on technical leveling to create equivalent designs. Technical proposals are rated and critiqued and each offeror is required to make specified design changes and corresponding changes in price. This evaluation process is not in accordance with Federal Acquisition Regulation (FAR) 15.306, Exchanges with Offerors After Receipt of Proposals. Technical leveling results when the Owner helps bring an offeror’s proposal up to the level of other proposals through successive rounds of discussions. Technical transfusion occurs when the Owner discloses technical information from one proposal resulting in the improvement of a competing proposal. Under the FAR rewrite, Part 15, Competitive Negotiation, technical leveling and technical transfusion have been eliminated. In its place negotiation and bargaining may be used. According to FAR 15.306(d), negotiations are exchanges between the Government and offerors that are undertaken with the intent of allowing the offeror to revise its proposal. Negotiations may include bargaining. Bargaining includes persuasion, alteration of assumptions and positions, give-and-take, and may apply to price, schedule, technical requirements, contract type, or other terms of the proposed contract. Negotiations take place after the competitive range is established and are called discussions. The purpose of discussions is

to maximize the Government's ability to obtain best value based upon the contract requirements and the evaluation factors contained in the solicitation and are tailored to each offeror's proposal. The minimum information that can be discussed with each offeror are their strengths, weaknesses, adverse past performance, and any other aspects of an offeror's proposal that could be altered or explained to enhance materially the proposal's chance for award. Where technical solutions may exceed the mandatory minimum requirements of the solicitation, and the Government has stated that evaluation credit would be given for such enhancements, the Government may negotiate with offerors for increased performance beyond mandatory minimums. The Government may also suggest to offerors that have exceeded mandatory minimums, and these suggested enhancements are not integral to the design, that their proposals would be more competitive if they removed the excesses and decrease their price.

There are limits on exchanges that can take place between the Government and offerors. Exchanges are not to favor one offeror over another, reveal an offeror's technical solution, reveal an offeror's price without the offeror's permission, reveal the names of individuals providing past performance reference information, or furnish source selection information.

In order to maximize Government's ability to obtain the best value, meaningful discussions should be held that help an offeror to materially enhance their technical proposal's chance for award without losing the creative and innovative approach that sets one offeror apart from another. Technical leveling, technical transfusion, or a system of points or weights does not offer the best approach for obtaining best value.

2. Directed Source Selection

The literature review revealed that non-DoD design-build utilizes a qualifications-based or negotiated direct selection procedure utilized for projects that are complex in nature or are still evolving when the specification package is under development and a clear and stable specification package cannot be prepared in great detail to compete the project. Through a selection process based on qualifications/past experience of the design-build entity one design-build team is selected and is involved in programming, project definition, budgeting, scheduling, detailed design, and construction from the start of the project through completion.

NAVFAC's acquisition policy (Capital Improvement Business Line, Design-Build Policy and Guidelines, 2005) mirrors the Federal Acquisition Regulation (FAR) in that selection of a design-build contractor will be based on best value or price and not solely based on qualifications. Best value entails either a low price technically acceptable source selection process or a trade-off process. NAVFAC does allow sole source negotiated design-build contracts under \$3 million with small disadvantaged businesses under the Small Business Administration's 8(a) program and under Job Order Contracts (JOC) where design-build is determined to be acceptable and there is a contractor with sufficient qualifications to participate. NAVFAC utilizes the two-phase RFP approach outlined in the Federal Acquisition Regulation to acquire design-build (Reference FAR 52.

The acquisition team for the Pentagon Renovation Program utilized the two-phase RFP approach outlined in the Federal Acquisition Regulation. After three (3) design-build teams were down-selected to continue into phase-two of the RFP process, the acquisition team spent 60 days conducting in-depth discussions with the three teams on all aspects of the draft RFP. The three offerors helped the Government write the request for proposal to "ensure that it was complete, comprehensive, and written flexibly such that each offeror could propose the most innovative solutions." It is not known, at this time, what procedures were utilized to conduct the in-depth discussions with the three offerors. It must be noted that if discussions were held they must be in accordance with FAR Part 15.306 which outlines how discussions are to be held with all offerors in the competitive range.

While the directed source selection approach undertaken in the private sector has merit the same outcome can be achieved if NAVFAC utilizes the acquisition policy outlined in FAR Part 15.3, Source Selection. In the push to get contracts awarded in less time, thereby decreasing PALT, acquisition personnel may not be ensuring that prospective offerors understand the intent of the RFP. In order for all offerors to understand the complex nature of the work to be undertaken meaningful discussions should be held with each offeror in the competitive range regarding their technical proposal. The Contracting Officer is encouraged to discuss aspects of the offeror's

proposal that could be altered or explained to materially enhance the proposal's potential for award. An offeror's technical proposal could suggest an approach that leads the Contracting Officer to believe that the offeror does not understand the scope of work. Meaningful discussions could be held with the offeror so they understand the scope requirements. Proposal revisions would be allowed to clarify and document understandings reached during negotiations.

There may be times when using a sole source negotiated procurement above \$3 million may be necessary depending on the complexity of the project, i.e., historical renovation projects.

D. LONG-STANDING RELATIONSHIPS/STRATEGIC PARTNERING

The literature review discovered that some companies utilize a long-standing relationship or partnership with a design-build entity when constructing new stores, distribution centers, or office spaces. The partnership begins during the site selection phase, which may be one or more years before construction commences and continues through the completion of construction. Many of these partnerships span years of successful design-build construction and there is a certain "comfort" level between the partners. The underlying success of these partnerships is that the partnership is based on a shared value system. It is important to note that a long-term relationship in the commercial sector may not be based on one contract spanning many years, but may be a strategic partnership where a design-build entity performs all design-build construction for a firm with each new project constituting a new contract. A successful long-term relationship is based upon trust, a dedication to common goals, an understanding of each other's individual expectations and values, and a full commitment to success. Benefits of a long-term relationship include improved communication, efficiency, cost effectiveness, increased opportunity for innovation, and the continuous improvement of product quality and service. Disadvantages may include inconsistent performance, ever-changing market conditions, decrease in competition, and personal relationships.

In a move to emulate best commercial practices the Department of Defense has promoted using award-term contracts. DOD 5000, Section 5.3.1.10 entitled "Award Contracts" states that award-term contracts should be used where possible to incentivize

optimal industry support. An award-term contract rewards the contractor by extending the contract period of performance without competing the new requirement. A true award-term incentive rewards the contractor with legal entitlement to a contract extension, not an additional option. A contractor is not entitled to exercise of an option as it is a unilateral right of the Government. Under a true award term incentive, if the contractor's performance meets the award term criteria stipulated in the contract, the price remains fair and reasonable, and if there is a continued need for the service and funds are available, then the government must either extend the contract or terminate the contract for convenience or default. The award-term contract is the closest DoD has come to mirroring the long-term relationship present in the commercial sector.

Department of the Navy, Naval Facilities Engineering Command, also has its own spin on the award-term contract. NAVFAC has developed an award-option incentive contract with a maximum contract length of 10 years. This ten-year contract length is a combination of regular option periods and award-option periods. The award-option also incentivizes the contractor by extending the contract performance period but only if the contractor performs at an exceptional level. If not, then the award-option period is lost. The award-option is best suited to multiple-award Indefinite Delivery Indefinite Quantity (IDIQ) contracts rather than stand-alone contracts as each delivery order is competed among at least three (3) contractors. The guidance authorizing use of the award-option was published April 15, 2002, however, Section 843 of the National Defense Authorization Act for Fiscal Year 2004, Public Law 108-136, was changed and impacted the use of the award-option contract by NAVFAC. This impact affects the length of Indefinite Delivery Indefinite Quantity (IDIQ) contracts, especially MACC contracts for design-build services, and reduces the contract length from a maximum of 10 years to a maximum of a base year and four one-year options, totaling five (5) years.

By emulating the commercial sector's stance on long-term partnerships NAVFAC could be circumventing the Competition in Contracting Act (CICA) of 1984 by utilizing the award-option for stand-alone contracts that go beyond five years. (41 U.S.C 254, Competition in Contracting Act of 1984). The Competition in Contracting Act, Public Law 98-369, requires that contracting officers promote and provide for full and open

competition in soliciting offers and awarding contracts over the simplified acquisition level. There are, however, limited exceptions to full and open competition. Maximum competition is desirable from a public perspective as it results in a timely delivery of quality goods and services at a reasonable cost. It is conceivable that, for projects under \$3 million, individual sole source contracts could be awarded to a contractor under the Small Business Administration's 8(a) program on a continuous basis. There is the possibility that the SBA will not approve of continuous design-build contracts with the same contractor as it circumvents competition. In order to be in compliance with CICA and to promote competition to the maximum extent practicable the award-option should be used only for multiple award design-build contracts (IDIQ).

E. CONTRACT INCENTIVES

It is important during acquisition planning to conduct market research to determine current industry practices/processes, types of contracts available, needs of the client, and how well the same or similar services previously met the client's needs. A client's dissatisfaction with the current design-build process and previous results of design-build projects should not go unnoticed by the contracting office. The contracting team should review the latest design-build projects completed and determine if the projects were completed on schedule, within cost, and with no quality/performance/functional concerns. If we look at any of these performance criteria, or at the criteria as a whole, and determine there is client dissatisfaction or if there is room for improvement in contractor performance then the contracting team needs to look at using other than a firm fixed-price contract, preferably an incentive contract that motivates the contractor to perform better. There are many types and combinations of contract incentives such as incentive fees and award fees. The goal is to choose the contract type appropriate for the circumstances that will best motivate the contractor to perform. It is at the acquisition planning/strategy stage that current industry practices/processes are examined to see if they might yield the same results for the Government. One of these processes or best practices is that of contract type. Common contract types in the non-DoD design-build arena are guaranteed maximum price or cost-

plus with a guaranteed maximum price (GMP), with or without a shared savings clause. These types of contracts are similar to DoD award fee and incentive contracts.

A good example of incentives effectively used in a design-build contract can be found in the Pentagon Renovation Program (PENREN). (Owners Perspective: “Contract Incentives and Design-Build: Rethinking Acquisition Strategies”, Fall 2005). The Pentagon Renovation program implemented a hybrid contract type when they awarded their first design-build contract for a Remote Delivery Facility in March 1999. The contract was a firm fixed-price incentive contract with an award fee (FPI/AF). The FPI/AF contract is similar to the commercial (non-DoD) cost-plus with guaranteed maximum price. The fixed-price incentive contract included a target cost, target profit, and a sharing arrangement for cost under-runs and cost over-runs. The Pentagon Renovation contracting team, during their market research, discovered that contractors were already focused on cost control and wanted to focus the design-build team on other aspects of performance such as quality, schedule control, and customer satisfaction. In order to zero in on these aspects of performance an award fee (AF) was used in conjunction with the fixed price incentive feature. What makes the PENREN contract incentives unique is that they first established the award fee pool at a higher rate than the typical profit rate for construction contracts in the Washington, D.C. area. Secondly, the PENREN contracts included a “gate” between the FPI and AF contract provisions. The “gate” mandated that through the life of the contract the contractor must earn at least 85% of the award fee pool to be eligible to receive its share of the any cost under-run that would occur. By linking the FPI to the award fee, PENREN made it clear to the design-build team that although cost control was important other factors such as quality, performance, schedule, and customer satisfaction were just as important and should not be sacrificed so the contract could be brought in under cost. Lastly, the PENREN contract included in their fixed-price incentive arrangement a target profit of \$0. An FPI opportunity is made available only when there is a cost under-run.

NAVFAC's Electronic Solicitation (ESOL) website was reviewed to determine if any design-build solicitations currently advertised contained contract incentives. All of the solicitations reviewed were firm fixed-price contracts and none contained a contract incentive provision.

Part of the acquisition planning process is to determine the type of contract to be used. The acquisition team should take into consideration results of past design-build projects when determining the type of contract to be used. If there have been issues of contractor's performance, quality, and cost then the acquisition team should review the type of contract incentives available and choose one that will result in motivating the contractor's performance.

F. FOREIGN-MADE MATERIALS

A process that is widely used in non-DoD design-build/construction contracts is that of purchasing supplies and materials without regard to origin of manufacture. Our literature review of commercial sector and public agency design-build acquisition, namely the State of California, confirmed that purchasing American-made goods and materials is solely a DoD requirement. Government design-build/construction requires the contractor use American-made construction materials. In doing so this requirement may place an undue burden on the design-build contractor.

The Buy American Act was passed in 1933 and mandates preference for the purchase of domestically produced goods over foreign-made goods in U.S. government procurement. The Buy American Act (BAA) may be waived by the President within the terms of a reciprocal agreement or in response to the provision of reciprocal treatment to U.S. producers. Recently the Free Trade Agreement (FTA), North American Free Trade Agreement (NAFTA), and the World Trade Organization Government Procurement Agreement (WTO GPA) has opened the doors to foreign-made goods from acceptable countries above a certain contract dollar threshold. (Wikipedia, 2006).

The current version of the Buy American Act (BAA), Federal Acquisition Regulation clause (FAR 52.225-11) has become more complex as acceptable foreign nations are added as "Designated Countries." Instead of a short list of nations that are not

acceptable, we have a long convoluted list of those who are acceptable. Confusion by both contractors and Government representatives is inevitable.

The Design/Build method of procurement further complicates proper and reasonable application of the Buy American Act. This occurs because the basis of the Buy American Act assumes the historical method of procurement via the Design/Bid/Build methodology. Under this historical methodology, all elements of the work are specified in detail such that materials that might be affected by the Buy American Act can be identified in advance of award. The burden to assess this situation and request relief prior to award is reasonably placed on the contractor in the bidding process. The contractor is required to identify all foreign-made construction materials that will be used in construction in their representations and certifications. As Design/Build has become the primary means of procurement, this historic foundation of the Buy American Act no longer functions correctly, because the design, and therefore, the specific details of materials that will be required are not known in advance of award. Yet the Buy American Act still requires the contractor to somehow assess the situation, and request any relief in advance of award. This is not realistic, or reasonable, in the realm of design-build contracting.

In preparing a proposal under a design-build procurement, the design is at best schematic. As a result, the contractors prepare their estimates/budgets in “broad brush” terms based on historical data, using costs per square foot, or other general bases of determining cost. Although the contract award amount is the “Not to Exceed” price, final costs for individual work elements (plumbing, electrical, carpentry, for example) are not finalized until the final design has been accepted by the Government. Specific quotes on specific materials are the exception not the rule. Unlike the historic procurement model, there is simply no basis to accurately assess potential Buy American Act issues prior to award. Until the design is completed and accepted the impact of Buy American Act affected materials simply cannot be assessed or quantified in other than the most general terms. This places an unfair burden on the design-build contractor because waivers to the Buy American Act are prejudiced against the contractor when not pursued in advance of award. When waivers to the Buy American Act are pursued after award, during the

design and/or construction phase, the waiver must be based on one of the three exceptions annotated in FAR 25.202. These exceptions are (1) impracticable or inconsistent with public interest, (2) non-availability, and (3) unreasonable cost. Obtaining a waiver after contract award and during either the design or construction phase may delay the project.

Another issue that needs to be clarified is the definition of “domestic availability.” More and more common construction materials are not domestically manufactured except by custom order. If you are willing to pay the price anything can be custom-made but this should not be the basis of establishing “domestic availability.” Domestic availability should be defined as “commonly available” or “regularly manufactured” by domestic sources. Without this clarification, again, an unfair burden is placed on the contractor especially in the design-build procurement environment. Another problem is that domestic manufacturers are not quick to manufacture an item that was initially developed and produced in another country. In order to meet contract requirements requiring facilities be constructed in accordance with LEED, some contractors design-in products that can only be purchased from foreign manufacturers. For example, instantaneous gas hot water heaters are manufactured that save energy and meet the requirements of LEED. Unfortunately, these instantaneous gas hot water heaters are only manufactured in Europe or Japan. U.S. manufacturers are not interested in manufacturing this product until they determine there is a U.S. market for the product.

The Buy American Act, as it applies to the procurement of construction materials under a design-build contract, should be examined and modified, as the law as currently written does not apply to design-build contracts.

G. CONSTRUCTION MANAGEMENT SERVICES

In our case analysis we learned that Monterey Peninsula College hired a construction management firm to act on their behalf to perform all aspects of the contracting function from issuance of the project RFP, technical oversight, contract administration, through to contract closeout. As discussed in Chapter II one of the decision factors a private owner must consider during acquisition planning is whether to perform construction management services in-house or whether to hire a construction

management firm to provide oversight. The issue of who will perform construction management services brings to light two issues for the Government. One, is it beneficial to “contract-out” the entire contracting/technical functions of the Government and two, is it beneficial for the Government to enter into a service contract with a contractor to provide an individual to fill a critical position on the acquisition team if the contracting office does not have an experienced individual to fill the position. For example, NAVFAC has entered into a services contract, on an as-needed basis, with a company to provide a project manager to perform technical oversight of a design-build construction contract. Criteria considered in making this decision was the experience level of existing technical personnel in the contracting office, dollar value of the contract, the need for experience in use of the critical path method in scheduling the construction work, type of project (historical renovation) undertaken, and breadth of construction management experience brought to the position.

The question of whether Government contracting/technical functions can be “contracted” out depends on whether the function is “inherently governmental” as defined in the Office of Federal Procurement Policy Letter 92-1. An inherently governmental function is defined as “a function that is so intimately related to the public interest as to mandate performance by Government employees. These functions include those activities that require either the exercise of discretion in applying Government authority or the making of value judgments in making decisions for the Government.” (Policy Letter 92-1, Inherently Governmental Functions, 1992). There are two categories of Governmental functions: the discretionary exercise of Government authority and monetary transactions and entitlements. Appendix A of Policy Letter 92-1 lists functions that are considered to be inherently governmental. Among those listed are Federal procurement activities such as determining what supplies/services can be acquired; participating as a voting member on a source selection board; approving contractual documents; awarding contracts; administering contracts; terminating contracts; and determining the reasonableness of contract costs. There is also a proviso in the policy letter that states “this policy letter does not purport to specify which functions are, as a legal matter, inherently governmental, or to define the factors used in making such legal

determination. Thus the fact that a function is listed.....does not necessarily mean that the function is inherently governmental.....or that the factor would be relevant in making the legal determination.” Therefore, there is probably some basis to rationalize that the contracting function can be “contracted out” with the exception of the authority of the Contracting Officer. The authority of the Contracting Officer is integrally bound to the discretionary exercise of government authority and monetary transactions discussed in the policy letter. Contracting Officer decisions are based on their interpretation of the Federal Acquisition Regulation and legally bind the government. Contracting Officers exert ultimate control over the acquisition, use, and disposition of Government property and use appropriated funds when awarding contracts. While actual contracting and technical functions may be acquired through a government contract the authority of a Contracting Officer may not be transferred to private individuals.

When NAVFAC decided to contract with a company to provide a project manager the Contracting Officer took into account whether or not the services to be provided were personal in nature. Since the Government is required to obtain its employees by direct hire under competitive appointment or procedures outlined in the civil service laws it was important that civil service laws were not circumvented. FAR 37.104 states “A personal services contract is characterized by the employer-employee relationship it creates between the Government and the contractor’s personnel. An employer-employee relationship under a service contract exists when contractor personnel are subject to continuous supervision and control by a Government employee.” NAVFAC took the following criteria into consideration when they determined whether a proposed contract for project manager services was going to be personal in nature: was performance to occur on site in a Government office; were principal tools and equipment such as vehicle, computer, digital camera, office supplies to be furnished by the Government; were services to be applied directly to the integral effort of the contracting office in furtherance of their mission; were there comparable services, meeting comparable needs, currently being performed in their other contracting offices using civil service personnel; was the need for the project manager expected to last longer than one year; does the inherent nature of the service, or the manner in which it is provided, require directly or indirectly,

Government direction or supervision of contractor employees in order to protect the Government's interest. The most important factor in the decision that this was not a personal services contract was that the contractor provided project manager was not to be under the continuous supervision and control of the Contracting Officer. The project manager is located in a Government office and a computer and office supplies were made available to the project manager for his use, however he was not authorized to use a government vehicle, digital camera, etc. Secondly, although NAVFAC had technically proficient project managers at other NAVFAC locations these Government employees were not available for temporary duty at the other site.

H. CHAPTER SUMMARY

This chapter began with the identification of non-DoD design-build processes: design requirements, source selection, contract incentives, long-term relationships, foreign-made materials and contract management. Each of these design-build processes was analyzed to determine which of these processes are best practices and how these best practices can be applied to DoD design-build procurement. It was determined that design requirements and contract incentives are best practices that can be applied to DoD design-build procurement. Chapter VI will discuss findings and present conclusions and recommendations for implementation.

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VI. FINDINGS, CONCLUSION AND AREAS FOR FURTHER RESEARCH

A. CHAPTER OVERVIEW

The purpose of this chapter is to present findings of the research and to provide recommendations and conclusions. The literature review revealed there are two design-build commercial practices that offer the most benefit to NAVFAC in their acquisition of design-build construction. These best practices are design requirements and contract incentives. The literature review also revealed there are problems with the Buy American Act as it currently applies to the acquisition of design-build construction.

B. FINDINGS AND RECOMMENDATIONS

Presented in the below paragraphs are the findings and recommendations of the research regarding comparison of non-DoD design-build practices with NAVFAC design-build practices. The researcher will discuss each best practice and determine its applicability to DoD.

C. DESIGN REQUIREMENTS

Although NAVFAC utilizes performance-based specifications to acquire design-build construction, the specifications contained in MILCON and MAAC contracts are still too prescriptive. Too much information is provided which, at times, causes conflicts between specifications, standards, and conceptual drawings. Recommend that facility requirements be stated in performance terms and relate to recognized industry standards; that performance specifications be tailored to include commercial codes and standards that establish minimum construction requirements; that these codes be augmented with specific Executive Order requirements such as ATFP, sustainable design, and LEED; and that regional market conditions be utilized to determine minimum quality requirements.

Although design review meetings are held throughout the design process it is recommended that submission of design documents and design reviews at preset milestones (35%, 65% and 100%) be replaced with an ongoing, constant review process that increases owner involvement and allows the design-build entity the flexibility to

achieve the desired outcome. This on-going, constant review process should be similar to design charrettes held in the commercial sector. Flexibility in design decisions will enable the design-build team to provide solutions that take advantage of their unique strengths and experience. At a NAVFAC Workshop, AIA 2005 Convention, held 17 May 2005, a working paper was written outlining a new design-build procurement process titled “Market Style Design-Build”. One of the outcomes proposed by this working group was to encourage construction speed and minimize Government delay by altering government oversight of design and construction. One recommendation made was that all government quality assurance design reviews be performed in parallel with construction by the contractor; this procedure emulates the practice undertaken in the commercial sector. This means that the contractor would not have to wait for formal government acceptance of design submittals and could begin construction when the contractor obtained Designer of Record (DOR) professional signatures, obtained contractor design quality control/quality control approvals, and forwarded the design submittal to the Government for review. While this practice may be a potential risk area for the Government, if an on-going, constant review process is utilized throughout the design process then the risk to the government will be minimal.

D. SOURCE SELECTION

1. Evaluation Process

NAVFAC policy requires that technical proposals be ranked and supported by a written narrative explaining any significant differences and that specific strengths, weaknesses and deficiencies of each proposal be included in the written narrative. Naval Facilities Engineering Command Acquisition Supplement (NFAS), Subpart 15.3, Source Selection, states points, colors, or alphabetical ratings are not to be utilized. The technical evaluation process includes an overall risk assessment of each technical proposal. The literature review revealed non-DoD owners utilize a variety of evaluation processes in evaluating technical and price proposals. These evaluation processes use either a point system, weights, or technical leveling to rate proposals. One evaluation process titled “Equivalent Design/Low Bid” relies on technical leveling to create

equivalent designs. Technical proposals are rated and critiqued and each offeror is required to make specified design changes and corresponding changes in price. This process, while applicable to non-DoD owners, is not in accordance with FAR 15.306. FAR 15.306 allows discussions to be held with offerors regarding strengths, weaknesses and/or deficiencies in their proposals but does not allow technical leveling or technical transfusion to occur. In order to maximize Government's ability to obtain the best value, meaningful discussions should be held that help an offeror to materially enhance their technical proposal's chance for award without losing the creative and innovative approach that sets one offeror apart from another. Technical leveling, technical transfusion, or a system of points or weights does not offer the best approach for obtaining best value.

2. Directed Source Selection

Directed selection, although a commercial best practice, may not be viable for DOD contracting as it is only allowed by NAVFAC for acquisitions below \$3 million. "Partnering the Proposal" is a method developed for use on sole source contracts with firms who are certified with the SBA under their 8(a) program. This process allows for flexible scope discussions between the technical staff, customers, and the contractor during the proposal phase and prior to contract award. Recommend that this method continue to be utilized as appropriate for those projects that require continued scope development during the RFP process. Directed selection for projects above \$3 million should not be ruled out entirely by NAVFAC. There may be instances when the acquisition team is faced with a project that is complex and the scope of work cannot be prepared in detail for competition, the budget is limited, and/or the Government does not have experience in this particular area. In these circumstances it might be beneficial for the contracting office to align themselves with one design-build entity with good past performance/experience in this area.

E. LONG-STANDING RELATIONSHIPS/STRATEGIC PARTNERSHIPS

Long-term relationships offer advantages and disadvantages. Award-term and award-option contracts are one way to achieve a long-term relationship with a design-

build entity and most closely mirrors the relationships established in the commercial sector. With the recent Department of the Navy policy changes regarding contract length, award-term and award-option contracts are no longer viable beyond five years (Department of the Navy, Interim Guidance for Task & Delivery Order Solicitations and Contracts, 2004).

F. CONTRACT INCENTIVES

Contract incentives are an appropriate method of motivating a contractor to perform beyond contract requirements. Determining contract type and whether incentives are appropriate is the responsibility of the acquisition team during acquisition planning and market research. The contracting team should review the latest completed design-build projects and determine if the projects were completed on schedule, within cost, and with no quality/performance/functional concerns. Using the experiences of the Pentagon Renovation Program team and their approach to market research, each acquisition team should determine what the market in their area is telling them about design-build: who are the potential design-build entities we expect to compete, what are the driving forces in the design-build market in the area; etc. Incentives should be tailored to the specific procurement action. Recommend NAVFAC develop and implement policy for the use of contract incentives in design-build construction contracts.

G. FOREIGN-MADE MATERIAL

Government design-build/construction requires the contractor use American-made construction materials while commercial practice does not make a distinction as to where materials and supplies are manufactured. In design-build construction, there is simply no basis to accurately assess potential Buy American Act issues prior to award. Until the design is completed and accepted the impact of Buy American Act affected materials simply cannot be assessed or quantified in other than the most general terms. The definition of “domestic availability” should be modified. Domestic availability should be defined as “commonly available” or “regularly manufactured” by domestic sources. Buy American Act guidance should be specifically tailored for design-build construction. Recommend that the requirement to have the contractor identify foreign-made material in

the representations and certifications of the contract be eliminated. Recommend the Buy American Act, as it applies to the procurement of construction materials under a design-build contract, be reviewed, examined and modified by the FAR Secretariat, as the law as currently written is does not apply to design-build contracts.

H. CONSTRUCTION MANAGEMENT SERVICES

Should construction management services be “contracted out” by the Government? The issue of “contracting out” the entire contracting/technical function of an organization under the A-76 program may be controversial, however there may be instances when a critical position, such as that of project manager, is not readily available within the NAVFAC community and the position must be filled by hiring a contractor to provide the services. NAVFAC must closely review the requirements of FAR 37.104 to determine if a personal services relationship may exist prior to awarding a contract.

I. CONCLUSION

Since 1985 the traditional design-bid-build project delivery system has steadily declined while the design-build project delivery system has seen tremendous growth. NAVFAC has continued to utilize the design-build approach and has mandated that by the end of Fiscal Year (FY) 07, 75% of capital improvement projects above \$750,000 will be accomplished by design-build acquisition. The strategy to be employed by NAVFAC is to ensure the most efficient business processes are in place. It is imperative that NAVFAC continue to review commercial best practices and to implement those best practices to streamline the acquisition process thereby decreasing cost and time to completion, allow for flexibility and innovativeness in design, and assure that a quality project is constructed.

The Federal Acquisition Regulation encourages the acquisition of supplies and services by commercial methods and this policy should be extended to the acquisition of design-build construction using commercial practices. The Pentagon Renovation Program is a model that should be examined more closely for lessons learned as their acquisition of design-build more closely mirrors that of the commercial sector all the while adhering to DoD policy and the Federal Acquisition Regulation.

J. AREAS FOR FURTHER RESEARCH

We have discussed previously the Pentagon Renovation Program and their development of revolutionary construction business practices, namely the use of performance based specifications and incentive structures in design-build contracts. Further research of this model should concentrate on whether these business practices have produced the cost and timesaving results expected.

Another area of study is the use of strategic partnering in design-build construction. Many European countries are moving toward supply chain management-type of contracts for design-build. These contracts require long-term partnerships with selected design-build entities and material suppliers. Selection of design-build entities is based exclusively on qualifications and past performance. Supply chain management requires the creation of long-term relationships where owners and suppliers align their cultures and develop strategies to take advantages of efficiencies in the marketplace. These strategic partnerships are not sole source awards but are long-term agreements with indefinite quantities attached to the deliverables. Would these strategic partnerships provide any benefits or savings if these concepts were adopted by the Government in their acquisition of design-build.

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